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# THE DIXIE RANGER

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The cover was made from a  
photograph contributed by District Ranger  
Hugh Redding, Kisatchie National Forest

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# THE DIXIE RANGER

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## HOW ARE YOU BETTING?

The race is on. How are you placing your bets? What race? Why, the one to see who will scrape together the second million-acre forest in the Southern Region. The Ouachita has already arrived, having a net of 1,235,000 acres. It is therefore disqualified, but here is how the contestants stand:

Florida Units	968,000 A. Net
DeSoto	921,000 A. Net
Cherokee-Ala.	761,000 A. Net
Ozark	741,000 A. Net
Pisgah-Unaka	674,000 A. Net
Sam Houston	607,000 A. Net

In the Junior League, which is trying to arrive at the half million mark, the contestants stand as follows:

Sumter	454,000 A. Net
Nantahala	432,000 A. Net
Kisatchie	419,000 A. Net
Alabama Units	141,000 A. Net

It looks like a walk-away for Florida and the Sumter is out in the lead, but you'd be surprised at how some of these other fellows can come out from behind.

--Joseph C. Kircher  
Regional Forester

## HOUSE PASSES STATE FORESTS BILL

The bill to authorized the cooperation of the States and the Federal Government in acquiring, developing, administering, and managing State Forests was passed by the House of Representatives on May 22 without opposition.

A few days later the Director of the Budget reported unfavorably on the bill, H. R. 6914, automatically preventing it from being sponsored by the Forest Service. The Service, therefore, cannot sponsor the legislation. No amendments to the bill of any consequence were made in the House except one affording each State an opportunity to be heard by the Secretary of Agriculture before the termination of an agreement.

As the bill now stands, it authorizes the Federal Government to make an appropriation of \$20,000,000 for the purchase of forestry lands in the States in cooperation with the Forest Service and subject to the approval of the National Forest Reservation Commission. The Federal Government will retain title to the lands until such time as a State reimburses it without interest from the proceeds of the sale of forest products and use of the lands while it has jurisdiction of them. After the State refunds the purchase price, it will receive title to the lands for use as State Forests.

## THE USE OF AERIAL PHOTOGRAPHS IN FOREST SERVICE ACTIVITIES

By W. N. Sloan  
Engineering Division.

For something like twenty years engineers have been coming to a rapidly increasing realization of the great value of aerial photography in all kinds of surveying and mapping. This method of mapping, which had been considered by comparatively few people prior to the world war, was given much impetus by its use on the European battle front, and has been rapidly developed since that time. For some years after the war the United States lagged behind Europe, and was also behind her neighbor, Canada, in this development; but, during the last few years American engineers have realized that they were in danger of falling behind the times, and have rapidly moved up to a position with the leaders in this field.

Foresters were early to realize the advantages of aerial photography in their work. It is necessary in the administration of the National Forests to have maps of these large areas giving as much detail as possible, and it is important, due to the comparatively low value of the land involved, that the cost of such maps be kept to a low figure. Aerial photographs lend themselves particularly well to the attainment of these objectives. This paper is written for the purpose of calling attention to a number of specific ways in which the aerial photographs that we have already secured in Region 8, and the ones which we will doubtless have made in the future, can be used to advantage.

### Triple Use of Photographs

The use of aerial photographs falls, roughly, into three more or less distinct kinds. First, there is their use in locating an intensive network of horizontal control points by means of graphic triangulation. Second, they present, in relative position, a view of all the details of the earth's surface which are visible from the elevation from which the picture was taken. Third, they enable one who is familiar with their use for this purpose, by the aid of special stereoscopic equipment to trace out contours, and, after the establishment on the ground of a small amount of vertical control, to actually prepare contour maps to a fairly high degree of accuracy.

### Horizontal Control by Photographs

It is apparent, of course, that no photograph can be an exact map. An aerial photograph of a portion of the earth's surface bears the same relationship to a correct map of the area that a photograph of a building does to an architect's elevation drawing. The photograph shows everything in perspective. Therefore it is quite easy to see that, in a vertical photograph of a rough, steep country, where the differences in elevation are great, various points on the picture are not shown in their correct planimetric position with reference to the center of the picture or point of observation. However, if the photograph is a truly vertical one, this difference in elevation does not affect the fact that every point in the picture is shown in its true direction from the center of the picture.



This fact is taken advantage of to establish, in their true position, and on a map of any desired scale, any number of horizontal control points; the only limitation on the numbers being that each point selected must be plainly and definitely identifiable on at least two photographs which overlap it. This method of establishing horizontal control is being used on a number of our new purchase units to control acquisition boundary surveys, and detailed instructions for procedure are set up in the Acquisition Survey Handbook for Regions 7 and 3, and need not be repeated. However, a brief and general description of the method may not be out of place here.

#### Some Ground Control Needed

First, it is of course necessary to run a certain amount of ground control with the usual surveying instruments, a transit and tape. This control should consist of lines six to ten miles apart, run as nearly as practicable at right angles to the line of flight of the photographer, and, of course, tied in to the Coast and Geodetic Survey or Geological Survey net of triangulation; and should tie in at least three identifiable points on each picture crossed. These lines being plotted up on a base map, to whatever scale it is desired to make the map, the actual work with the picture is taken up.

The first and perhaps most important requisite for picture used for horizontal control is that consecutive pictures along a flight all overlap each other more than fifty percent. It is customary to specify an overlap of sixty percent. The central point of each picture, or point directly under the camera, must be indicated on each photograph. This is done by very carefully tested markings on the camera itself. The photogrammetrist now spends considerable time in preparing the photographs. When he has finished, each photograph has plainly indicated on it not only its own central point, but the central points of all overlapping photographs which show on it, and a number of points chosen on account of their position and ease of identification. Each point, of course, shows on two or more pictures. A template of some transparent material is now placed over each picture, and on it are shown the central point of the picture and radial lines drawn from this point to the various points already designated on the picture. Then beginning with a template which has three points located by the ground control, the template layout is extended to the next ground control line by making all radial lines drawn to the same point intersect with as small a triangle of error as possible. Thus there is located, on the base map, the central point and a number of control points for each picture and corresponding template; and any template can be correctly located and oriented on the base map. Thus it is evident that any point on the ground, which can be identified on the photographs, can be immediately transferred to its exact position on the base map. All that is necessary is to indicate it on two or preferably three overlapping pictures, draw radial lines to it on the templates, orient the templates on the map and prick through the point of intersection of the radial lines. This is the method which is being used to control boundary surveys; and administrative officers should be alive to the opportunity which it offers of making surveys for all kinds of administrative

purposes. If it is desired to locate a burned area, one on which a timber sale is being made or a special use permit granted, one man can go into the field with a photograph, walk around the desired area locating a sufficient number of perimetric points on the picture, and return to the office and map the desired area exactly as to size and position, without having to run the usual compass and tape boundary and tie line. These control templates are available on all units which have been photographed for acquisition survey mapping, and should be preserved for use in the manner described.

#### USE OF PHOTOGRAPHS IN LOCATING DETAILS OF TOPOGRAPHY AND CULTURE

This second use of photographs, for the purpose of seeing, from a perfect vantage point, what is actually on the ground, is one that is more readily understood and appreciated, and will doubtless appeal more strongly to the average Ranger, let us say, than the first one.

It is believed that where photographs are available, almost no Forest Service job should be undertaken without first "consulting the record" in the form of aerial photographs. Let us suppose for instance, that a road is to be located into new country. Before the locator goes into the field he should very carefully study the aerial photographs. They will, almost invariably, enable him to pick out the most desirable route without the trouble and expense of several days field reconnaissance. About 1924 I spent several weeks running Abney level locations over various possible routes for the Nantahala River Road on the Nantahala Forest. I feel sure that if aerial photographs had been available, the correct route would have been decided upon before I left the office. It is even possible that with the whole country spread out before me in the form of a picture, I might have selected a better route than the one finally decided upon after several weeks of scrambling around over rock cliffs.

Or, suppose again, that a timber survey is to be made. Surely everyone will admit that the timber cruiser should first carefully study his country through the medium of aerial photographs. Not only can he thus get a much better idea of where to place his base lines and cruise strips, but he can, through use of the photographs, put in many of his type lines much more accurately than they could be sketched in from his field work. Agricultural land, grazing land, timber land and open water can all be identified and located exactly. Also, lines between different types of timber can often be traced very exactly on the picture. No claim is made that any dependable estimate of a timber stand can be made from an aerial photograph alone; but when the photograph is used in connection with ground work, it lessens the amount of ground work necessary and, at the same time, insures more accurate results. On the Croatan Purchase Unit, during the past few months, timber cruisers have saved themselves the task of running many miles of difficult strip line through rough, un-timbered areas, by first locating the extent of these areas on their photographs. Let the point be stressed that no one should undertake a valuation survey of forest land where aerial photographs are available without basing his survey on these photographs.



## Should Aid Fire Suppression

Fire suppression is another activity in which a complete birdseye view of the terrain involved should prove invaluable. When a dangerous fire is reported to a Ranger, he can, by consulting his aerial photograph, see at a glance the streams, lakes, swamps, roads, ridges, cleared fields and variations in density and kind of timber; and he can see all of these things as they actually appear, instead of a representation of them by arbitrary map symbols which, at best, cannot present the same picture with equal clarity and swiftness to any except a mind long trained in their constant use. It seems self evident, therefore, that on most large fires, the fire fighting force could be better organized through the use of aerial photographs than without them. This is, of course, particularly true of remote, seldom visited and therefore little known areas.

One could go on, almost indefinitely, listing Forest Service projects which can be expedited by the use of photographs, but the ones described should furnish an adequate idea of the possibilities in this field.

## DETECTING AND MAPPING RELIEF BY PHOTOGRAPHS

The use of photographs for detecting and mapping relief is still in a comparatively imperfect stage of development even by engineers who are specializing in this work. It is based on the fact that the stereoscopic viewing of two photographs of the same area taken from different points brings out in relief the difference of elevation. This principle can be used in the preparation of contour maps only by skilled personnel handling specialized and expensive equipment. However, the fact that contour maps cannot be prepared with the equipment available in Supervisor offices should not prevent the administrative man on the Forest from availing himself of the opportunity, whenever desirable, of viewing through a stereoscope any portion of the Forest covered by overlapping photographs. A stereoscope should always be available wherever there are contact prints of aerial photographs, and its use by all who have occasion to consult the photographs should be encouraged.

All that is needed to encourage anyone in the use of the stereoscope is a little time spent in viewing through this instrument overlapping pictures of some rather steep, rough country. This will bring out the advantages and benefits to be derived more forcibly than any words which I could use.

## EIGHTY CARS IN OUACHITA CARAVAN

An outstandingly successful show trip was staged under the direction of Ranger Charles Melichar on May 26 when he conducted a caravan of 80 automobiles carrying 300 persons on a 50-mile trip through a rugged section of the Ouachita National Forest recently made accessible to motorists by roads constructed with CCC labor.

The caravan, which included cars from Fort Smith, Hot Springs, Little Rock and other large Arkansas cities, started from Mena, Ark. The route chosen emphasized the recreational opportunities which the Ouachita National Forest offers the public. Lieutenant Governor Cazort, who made a talk at the luncheon served at Bard Springs, described these advantages as unexcelled in the State and predicted that the CCC improvements would draw large numbers of visitors in the future.

The luncheon, the basis of which was roast beef and potatoes, was served by the Army at a nominal charge of 25 cents per person. The crowd was larger than anticipated, but the Army handled the job in such a way that luncheon played an important part in the success of the occasion. CCC enrollees prepared and served lunch, directed traffic, rendered first aid to motorists in difficulty with flat tires and other car trouble, and received a great deal of deserved commendation from the visitors.

Ranger Melichar's caravan attracted statewide attention from the newspapers and was the subject of radio broadcasts from several stations. Regional Forester

Kircher said it represented a splendid beginning for this type of work in the Southern National Forests, and that he hoped that wherever practical show trips would become annual features on all the forests in Region 8.

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## CCC ROAD TO PISGAH'S RHODODENDRON GARDENS DEDICATED

Standing at an altitude of nearly 6,000 feet, the Craggy Rhododendron Gardens, "highest and largest flower garden in the world," were officially dedicated at noon Monday, June 10, thereby opening the Eighth Annual Rhododendron Festival in Asheville. The Craggy Gardens are reached through Barnardsville and the Craggy Flats Road to Bear Pen Gap, recently completed by Camp N. C. F-8. Cars were parked at the parking space made in Bear Pen Gap. It was then necessary to walk about three-quarters of a mile to the site of the dedication ceremony, but a well constructed, easy trail made the short hike pleasant.

Cultural Foreman Miner had charge of the decoration of the float entered in the Rhododendron Floral Parade representing the Pisgah and Nantahala National Forests. We are proud to say that this float received first prize for all sections in this parade.

The ceremony at Craggy Gardens opened with a dance by the rhododendron nymphs. There followed short talks by Gerald Cowan, President of the Chamber of Commerce, Dr. W. B. Allen, President of the Optimist Club, General Manus McCloskey, Commander District "A" CCC, Supervisor Sam R. Broadbent, Holmes Bryson, Vice-Mayor of the City of Asheville, and D. Hyden Ramsey. The presentation of Miss Marshall Richbourg as Miss Asheville followed these.



After the ceremonies the Forest Service and Army personnel, which included General McCloskey, Lt. Reynolds Condon, Lt. W. M. Gardner, Major Hunter and Chaplain Teague, Supervisor Broadbent, Assistant Supervisor Bryan, Ranger Branch and Acting Assistant Road Superintendent Morrow returned to Camp N.C. F-8 for lunch.

Traffic up the mountain was closed after 11:00 a.m. and the road was open for down traffic after 1:00 p.m. CCC enrollees were posted all along the road and trail to keep traffic moving, give information, and help visitors if necessary. A visitors' register at the parking ground showed that 400 people in 115 cars from fifteen states besides North Carolina and one foreign country were present for the dedication. This is only an indication of the visitors that are expected during the summer at this beauty spot. The rhododendron will be in full bloom by June 15 and it is a sight well worth seeing. The Craggy Flats Road is in excellent condition and may be traversed with ease in any weather.

--Sam R. Broadbent  
Forest Supervisor

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NORTH CAROLINA INCREASES  
PROTECTION FOR HER FORESTS

Forest protection in North Carolina goes forward this year with a vigorous stride.

Twenty additional counties qualified for protection, according to W. C. McCormick, Assistant State Forester in charge of Fire Protection, and the funds available for fire protection, including State, county and private and Federal allotments, amount to approximately \$160,000.

Last year's funds from all sources amounted to \$117,271, giving an increase for this year of approximately \$42,000.

The new fire law passed by this year's Legislature authorized the State Forester to appoint one or more forest wardens in each county of the State, where in his judgment, the establishment of a forest fire organization is warranted. It has not been necessary to use this authority which makes fire control mandatory if deemed necessary by the State Forester. The interest in the conservation of the State's resources developed through the combined efforts of the North Carolina Forest Service and the CCC have brought in all the cooperation that State and Federal funds can match.

Mr. Holmes reports that funds of the entire Department are substantially increased and there will be a total of approximately \$182,000 available from all sources for forestry in North Carolina during the coming year.

--W. R. Hine  
States Relations Division

HOW ABOUT A NICE "MONSTROSITY"?

The following article by Kenneth Davis appeared in the Northern Region News. It is reprinted at the request of J. F. Brooks who says Region 8 has acquired some monstrosities in the same way.

"Do You Believe in Bargains?": Among various and sundry items of surplus Army stocks available for free transfer to the Forest Service for ECV work was listed 'one paper cutter.' This item was requisitioned for the Deception Creek Experimental Forest -- to trim

photographs, etc.

"Imagine then our consternation, amazement, and wonder when this innocent item arrived recently in Coeur d'Alene, Idaho as sole occupant of a boxcar routed from New Jersey. It stood only a little over six feet in height and weighed, according to the GB/L, a modest 4,050 lbs. An equally modest freight bill of \$187 was attached. All it needed was a paper factory to make paper for it to cut.

"After going into a huddle, it was decided that summary treatment, such as hiding it in the brush or selling it to a foundry, would be contrary to all the laws and by-laws of the Procurement Division. Finally, it was coaxed onto a truck, hauled to Spokane, and proudly presented to the Spokane Warehouse which welcomed it with great enthusiasm. LaVerne Huffman, with true warehouse enterprise, thought they might make some use of it. He hadn't seen it yet, however.

"This mighty piece of machinery will be gladly shipped C.O.D. to anyone betraying the least interest in it. The big knife would make an excellent guillotine, only such things are a little old-fashioned just now." -- Kenneth Davis."



## THE LOOKOUT

Chief Forester Silcox visited Sumter National Forest when he was in Charleston, South Carolina, recently to receive the honorary degree bestowed upon him by his alma mater, the College of Charleston.

Regional Forester Kircher was in New Orleans on June 6 and 7. On June 20 he and Regional Engineer Pidgeon will meet District Engineer Charles B. Snead of the Bureau of Public Roads in Montgomery, Alabama, for a conference on highway programs for Florida, Georgia, Mississippi, Alabama, South Carolina, and Tennessee.

Assistant Regional Forester Stabler is in Washington. On June 11 he and Mrs. Stabler attended commencement exercises at the University of Virginia where their son was a member of the graduating class.

Regional Engineer Pidgeon made a trip to Nantahala National Forest to inspect the Clayton-Pine Mountain Road with H. R. Jones, Assistant Engineer from the Washington Office. They also inspected the Cooper Creek Recreational Dam Project on the Cherokee and went over the soil stabilization work for that forest.

Mr. and Mrs. Howard B. Waha have returned from a trip to their former home in Cleveland, Ohio, to bring their son and daughter back from school.

Assistant Regional Forester Evans made a trip to New Orleans early in June.

J. F. Brooks is back at his desk in Atlanta after several weeks in the field.

F. C. Stone, Division of Operation, is on a trip to Arkansas and Texas.

Fiscal Agent Marshall has returned from Washington, D. C., where he spent several days on official business.

While on a vacation in Philadelphia, Ed Manges, assistant ranger on the Sumter, suffered an attack of appendicitis.

Mrs. Mardelle Carlock, Accounts Division, spent a few days in Memphis recently.

H. W. Rainey, Engineering Division, will meet A. L. Anderson, Chief Engineer's Office, Washington, in Asheville the week of June 24 to discuss road construction work for the Pisgah. They will be joined later by J. H. Stone, Division of States Relations, for an inspection trip of State CCC camps in South Carolina.

Mr. Whipple, project superintendent on the Unaka, was in the Regional Office several days ago.

Senior Forest Code Examiner C. G. Smith, New Orleans, was in the Regional Office on June 13, 14, and 15.

Mrs. G. M. Carter, Division of Engineering, has returned from a trip to Washington, D. C.

Elba Groom (no puns) Ouachita National Forest, was married June 1 to Miss Elizabeth Jenkins of Gurdon, Arkansas. The honeymoon was spent in New Orleans.

Messrs. Richards, Frank, and Lentz of the TVA, Knoxville, were recent visitors in the Regional Office.

The Asheville delegation, meaning Marion Field and Lillian and Jewell King, Division of States Relations, and Virginia Hulme, Accounts, went home for the weekend of June 15.

W. R. Hine, Division of States Relations, left June 17 for Gloversville, New York, where his brother died suddenly on June 16.

W. R. Williamson, Engineering Division, has returned from a vacation spent in Richmond and Annapolis. His brother was graduated from the Naval Academy this year.

E. C. Long, Accounts Division, is on leave.

H. B. Heffner and F. F. Claflin, Engineering, have returned from several days' vacation spent chiefly in Washington.

Among the Sumter National Forest personnel seen in Athens at the Forestry banquet and dance at Georgia University were Miss Constance Burbage, Ranger W. P. David, Lloyd P. Blackwell, "Shorty" Miller, and Orrie W. Hanson.

H. C. Bradshaw has been ill for about three weeks but is expected to return to work soon. This is important news to the DIXIE RANGER which he mimeographs. Had W. H. Malpasse not come to the rescue and put in some overtime, the June issues would probably have been July ones.

Miss Helen O'Neill, of our Drafting force, was injured in an automobile accident last weekend. Her shoulder was badly crushed and will have to be in a brace for six weeks. She is in Foree Hospital, Athens, Tennessee.

Mr. W. Lewis Gerrard was married on June 1 to Miss Joyce Ann Folsom of Wrightsville, Georgia.